Joint ASEAN-Africa Workshop on Computational and Applied Mathematics

(13 Apr 2026–17 Apr 2026)

ORGANIZING COMMITTEE

Chair

Weizhu Bao
National University of Singapore

Members

Abdon Atangana
University of the Free State, South Africa

Intan Muchtadi
Institut Teknologi Bandung

Weiqing Ren
National University of Singapore

Wil Schilders
Eindhoven University of Technology

Jointly organized with the Department of Mathematics, National University of Singapore

Venue

IMS Executive Seminar Room
Bock S17, Level 3
10 Lower Kent Ridge Rd Singapore 119076

For more information: https://ims.nus.edu.sg/events/asean_africa_am

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Monday, 13 April 2026		
Time	**Title**	**Speaker**
0900–0920	Registration	
0920–0930	Welcome Remarks	Local Organizer
Session Chair: Weizhu Bao (National University of Singapore)		
0930–1000	Advancing Scientific Machine Learning in Industry	Wil Schilders *Einhoven University of Technology, Netherlands*
1000–1030	Overcoming Spectral Bias via Cross-Attention	Tao Zhou *Chinese Academy of Sciences, China*
1030–1100	*Coffee Break*	
1100–1130	Hybrid Least Squares/Gradient Descent Methods for DeepONets	Chang-Ock Lee *KAIST, S. Korea*
1130–1200	Learning Macroscopic Dynamics from Data	Qianxiao Li *National University of Singapore, Singapore*
1200–1400	*Lunch Break*	
Session Chair: Weiqing Ren (National University of Singapore)		
1400–1430	Topological Data Analysis for COVID-19 Classification from 5 Lung CT-Scan Images	Intan Muchtadi *Institut Teknologi Bandung, Indonesia*
1430–1500	Reaction Networks Approach of Modeling Biological and Disease Dynamics	Angelyn Lao *De La Salle University, Philippines*
1500–1530	Random Walks and Algorithms on Graphs	Thi Ha Duong Phan *Vietnam Academy of Science and Technology, Vietnam*
1530–1600	*Coffee Break*	
1600–1630	Transmission Dynamics of Soil-Transmitted Helminths Incorporating Human and Animal Hosts	Editha Jose *University of the Philippines Los Baños, Philippines*

Monday, 13 April 2026		
Time	**Title**	**Speaker**
1630–1700	Quantifying the Effectiveness of Mangroves, Seagrass, and Eco-Structures in Coastal Wave Attenuation	Ikha Magdalena *Institut Teknologi Bandung, Indonesia*
1700–1730	A Novel Fractional Binary Model for Option Pricing: Market Completeness and Convergence	Martin Le Doux Mbele Bidima *University of Yaounde I, Cameroon*

Tuesday, 14 April 2026		
Time	**Title**	**Speaker**
0850–0900	Registration	
Session Chair: Wil Schilders (Einhoven University of Technology)		
0900–0930	Rank Inspired Neural Network for Solving PDEs	Yunqing Huang *Xiangtan University, China*
0930–1000	Stability and Growth in Incompressible Euler Equations	Yao Yao *National University of Singapore, Singapore*
1000–1030	*Group Photo & Coffee Break*	
1030–1100	Adam-family Methods with Decoupled Weight Decay	Kim Chuan Toh *National University of Singapore, Singapore*
1100–1130	Stability and Adaptive Enhancement of SPRING in Wavefunction Optimization	Xin Liu *Chinese Academy of Sciences, China*
1130–1200	Concave Certificates: Geometric Framework for Distributionally Robust Risk and Complexity Analysis	Hong Chu *Vin University, Vietnam*
1200–1400	*Lunch Break*	
Session Chair: Intan Muchtadi (Institut Teknologi Bandung)		
1400–1430	The unfinished equation: Why our Mathematics has Failed Nature	Abdon Atangana *University of the Free State, South Africa*
1430–1500	Computational Mathematics of Kilometer-Scale Regional Climate Downscaling over Borneo	Nurul Huda binti Mohd Ramli *Universiti Brunei Darussalam, Brunei*
1500–1530	A Mathematical Framework for Within-Host Mycobacterium Tuberculosis Infection and Host Immune Dynamics	Getachew Teshome Tilahun *Haramaya University, Ethiopia*
1530–1600	*Coffee Break*	

Tuesday, 14 April 2026		
Time	**Title**	**Speaker**
1600–1630	Breaking Nonlinearity Barriers in Science and Engineering with a Hermite–Padé Computational Framework	Oluwole Daniel Makinde *Stellenbosch University, South Africa*
1630–1700	Threshold quantities and Lyapunov functions for Ordinary differential equations Epidemic models with Mass action and Standard incidence functions	Baba Seidu *University of Technology and Applied Sciences, Ghana*
1700–1730	Chebyshev Finite Integration Method for Solving Heat Conduction with Nonlocal and Moving Boundaries	Ratinan Boonklurb *Chulalongkorn University, Thailand*

Wednesday, 15 April 2026		
Time	**Title**	**Speaker**
0850–0900	Registration	
Session Chair: Abdon Atangana (University of the Free State)		
0900–0930	Two-level Domain Decomposition-type Preconditioners for the Helmholtz Equation with High Wavenumber	Jun Zou *The Chinese University of Hong Kong, Hong Kong SAR*
0930–1000	Deflation-based Preconditioning for Immersed Finite Element Methods	Cornelis Vuik *Delft University of Technology, Netherlands*
1000–1030	*Coffee Break*	
1030–1100	Numerical Software Packages from the FASTMath Institute and Their Applications	Carol Woodward *Lawrence Livermore National Laboratory, USA*
1100–1130	A Priori and a Posteriori Error analyses of a Pressure-robust Virtual Element Method for the two-Dimensional Brinkman problem	Yanping Chen *Nanjing University of Posts and Telecommunications College of Science, China*
1130–1200	Explicit Symmetric Low-Regularity Integrator for the Nonlinear Schrodinger Equation	Yue Feng *Xi'an Jiaotong University, China*

Thursday, 16 April 2026		
Time	**Title**	**Speaker**
0850–0900	Registration	
Session Chair: Carol Woodward (Lawrence Livermore National Laboratory)		
0900–0930	Particle migration and Focusing in Microfluidic ducts	Yvonne Stokes *The University of Adelaide, Australia*

Thursday, 16 April 2026		
Time	**Title**	**Speaker**
0930–1000	Directional Variational Convergence, Directional Equilibrium Problems	Phan Quoc Khanh *Ton Duc Thang University, Vietnam*
1000–1030	*Coffee Break*	
1030–1100	Algebraic Tools for Coding Theory and Cryptography	Shakir Ali *Aligarh Muslim University, India*
1100–1130	Mathematics at the Core of Applied Research: Where Theory Meets Practice	Sara Abdelsalam *The British University in Egypt, Egypt*
1130–1200	Thinking in Networks: Mathematical Perspectives on Connected Systems	Fatimah Abdul Razak *Universiti Kebangsaan Malaysia, Malaysia*
1200–1400	*Lunch Break*	
Session Chair: Jun Zou (The Chinese University of Hong Kong)		
1400–1430	Generation of Aesthetic Curves: Integrability and Self-Affinity	Kenji Kajiwara *Kyushu University, Japan*
1430–1500	Identification of some Water Quality Models	Dinh Nho Hào *Institute of Mathematics Vietnam Academy of Science and Technology, Vietnam*
1500–1530	Exploiting Locality Structure in High-Dimensional Diffusion Models	Shuigen Liu *National University of Singapore, Singapore*
1530–1600	*Coffee Break*	
1600–1630	Discrete-Time Optimal Control of Species Augmentation in Interacting Population Models	Stephen Moore *University of Cape Coast, Ghana*
1630–1700	Approximate Controllability for some Integrodifferential Equations	Mamadou Abdoul Diop *Université Gaston Berger de Saint Louis, Senegal*
1700–1730	Control Chart for Monitoring Fraction Nonconforming based on the Generalised Beta of the First Kind Distribution	Kok Haur Ng *Universiti Malaya, Malaysia*
1800–2100	*Conference Dinner (by invitation only)* *Sponsored by the Department of Mathematics* Location: The Scholar Restaurant 9 Kent Ridge Dr, Singapore 119241	

Friday, 17 April 2026		
Time	**Title**	**Speaker**
0850–0900	Registration	
Session Chair: Yvonne Stokes (The University of Adelaide)		
0900–0930	A Global Structure-preserving Kernel Method for the Learning of Hamiltonian Systems	Juan-Pablo Ortega *Nanyang Technological University, Singapore*
0930–1000	Steering Large Language Models: A Geometric and Control-Theoretic Approach	Tan Minh Nguyen *National University of Singapore, Singapore*
1000–1030	*Coffee Break*	
1030–1100	Excitability and Feedback: to Pulse or not to Pulse?	Bernd Krauskopf *The University of Auckland, New Zealand*
1100–1130	Sums of Three Fibonacci Numbers as Concatenations of Repdigits in Base *b*	Pagdame Tiebekabe *University of Kara, Togo*
1130–1200	Lembangwean Analysis :Optimization of Logic Functions of Second Complete Conjunctive Normal Form using Linear Mathematical Complexity O(2n) and Two Modulable Analytical Principles	Stéphane Mangouala *ASIAM, Gabon*
1200–1205	Closing Remarks	

This schedule is still pending changes as of 13 Apr 2026.